

What is claimed is:

1. A multiple speed ratio power transmission, comprising:
 - an input supported for rotation;
 - a first layshaft supported for rotation;
 - 5 a second layshaft supported for rotation;
 - a first power path for transmitting power between the input and first layshaft, and producing a first ratio of a speed of the first layshaft and a speed of the input;
 - a second power path for transmitting power between the input and second layshaft, and producing a second ratio of a speed of the second layshaft and a speed of
 - 10 the input;
 - a clutch for driveably connecting and disconnecting the input and the first power path;
 - an output supported for rotation; and
 - a coupler for driveably connecting and disconnecting the output and the input.
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2. The transmission of claim 1, further comprising:
 - a one-way drive connection between the second layshaft and the input.
3. The transmission of claim 1, wherein the second ratio is less than the
- 20 first ratio.
4. The transmission of claim 1, wherein:
 - the first power path comprises a first pinion driveably connected to the input, and a first gear driveably connected to the first layshaft, in meshing engagement with
 - 25 the first pinion; and
 - the second power path comprises a second pinion driveably connected to the input, and a second gear driveably connected to the second layshaft, in meshing engagement with the second pinion.

5. The transmission of claim 4, wherein the second ratio is less than the first ratio.

6. The transmission of claim 1, wherein:

5 the first power path comprises a first pinion driveably connected to the input, and a first gear driveably connected to the first layshaft, in meshing engagement with the first pinion; and

the coupler driveably connects and disconnects alternately the output and the first pinion.

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7. The transmission of claim 1, wherein:

the second power path comprises a second pinion driveably connected to the input, and a second gear driveably connected to the second layshaft, in meshing engagement with the second pinion; and

15 the coupler driveably connects and disconnects alternately the output and the second pinion.

8. A multiple speed power transmission for motor vehicles, comprising:
an input;

20 a first layshaft supported for rotation;

a second layshaft supported for rotation;

a first power path for transmitting power between the input and first layshaft, and producing a first ratio of a speed of the first layshaft and a speed of the input;

25 a second power path for transmitting power through a one-way drive connection between the input and second layshaft, and producing a second ratio of a speed of the second layshaft and a speed of the input;

a clutch for driveably connecting and disconnecting the input and the first power path;

an output supported for rotation; and

a first coupler for driveably connecting and disconnecting the output and the first power path.

- 5 9. The transmission of claim 8, further comprising wherein
a first pinion supported on the first layshaft;
a second pinion supported on the second layshaft;
a first gear supported on the output shaft, in meshing engagement with the first pinion and second pinion;
a second coupler for connecting and disconnecting alternately the first pinion
10 and first layshaft; and
a third coupler for connecting and disconnecting alternately the second pinion and second layshaft.

- 15 10. The transmission of claim 8, wherein the one-way drive connection is a member of the group consisting of a one-way clutch, a sprag one-way clutch, a roller-one-way clutch, a mechanical diode, and a hydraulically actuated friction clutch having an engaged state wherein the second layshaft and input are driveably connected and a disengaged state wherein the second layshaft and input are driveably disconnected.

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11. The transmission of claim 8, wherein each of the first coupler, second coupler and third coupler is a member of a group consisting of a synchronizer and a dog clutch.

12. The transmission of 8, wherein the clutch is a friction clutch.

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13. The transmission of claim 8, wherein:
the first power path comprises a third pinion driveably connected to the input, and a third gear supported on the first layshaft in meshing engagement with said third pinion; and

the second power path comprises a one-way clutch driveably connected to the input, a fourth pinion driveably connected to the one-way clutch, and a fourth gear supported on the second layshaft in meshing engagement with said fourth pinion.

5 14. The transmission of claim 8, wherein the second speed ratio is less than the first speed ratio.

15. A multiple speed power transmission for motor vehicles, comprising:
an input;
10 a first layshaft supported for rotation;
a second layshaft supported for rotation;
a first power path for transmitting power between the input and first layshaft, and producing a first ratio of a speed of the first layshaft and a speed of the input;
a second power path for transmitting power through a one-way drive
15 connection between the input and second layshaft, and producing a second ratio of a speed of the second layshaft and a speed of the input;
a clutch for driveably connecting and disconnecting the input and the first power path;
an output supported for rotation; and
20 a first coupler for driveably connecting and disconnecting the output and the second power path.

16. The transmission of claim 15, further comprising wherein
a first pinion supported on the first layshaft;
25 a second pinion supported on the second layshaft;
a first gear supported on the output shaft, in meshing engagement with the first pinion and second pinion;
a second coupler for connecting and disconnecting alternately the first pinion and first layshaft; and

a third coupler for connecting and disconnecting alternately the second pinion and second layshaft.

5 17. The transmission of claim 15, wherein the one-way drive connection is a member of the group consisting of a one-way clutch, a sprag one-way clutch, a roller-one-way clutch, a mechanical diode, and a hydraulically actuated friction clutch having an engaged state wherein the second layshaft and input are driveably connected and a disengaged state wherein the second layshaft and input are driveably disconnected.

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18. The transmission of claim 15, wherein each of the first coupler, second coupler and third coupler is a member of a group consisting of a synchronizer and a dog clutch.

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19. The transmission of 15, wherein the clutch is a friction clutch.

20. The transmission of claim 15, wherein:

20 the first power path comprises a third pinion driveably connected to the input, and a third gear supported on the first layshaft in meshing engagement with the third pinion; and

 the second power path comprises a one-way clutch driveably connected to the input, a fourth pinion driveably connected to the one-way clutch, and a fourth gear supported on the second layshaft in meshing engagement with said fourth pinion.

25 21. The transmission of claim 15, wherein the second speed ratio is less than the first speed ratio.